



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,171	10/17/2005	Munetsugu Ueyama	017700-0180	1079
23392	7590	06/23/2010		
FOLEY & LARDNER 555 South Flower Street SUITE 3500 LOS ANGELES, CA 90071-2411			EXAMINER PATEL, ISHWARBHAI B	
			ART UNIT 2841	PAPER NUMBER
			MAIL DATE 06/23/2010	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/553,171	<b>Applicant(s)</b> UEYAMA ET AL.	
	<b>Examiner</b> Ishwarbhai B. Patel	<b>Art Unit</b> 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-14 is/are pending in the application.
- 4a) Of the above claim(s) 9-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This action is in response to amendment filed on April 5, 2010.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otto (US Patent No. 6,188,921) in view of Christopherson (US Patent No. 6,339,047), Higashiyama Kazuhisa (JP408106823) and Roberts (US Patent No. 6,300,285).

Regarding claim 1, Otto discloses a superconducting wire, comprising an oxide superconductor and a cladding metal for cladding said oxide superconductor (oxide filament in metal sheath, column 5, line 1-10), wherein the material of said cladding metal is silver and silver alloy (column 6, line 5-14, column 5, line ). Otto does not explicitly disclose the cladding metal comprising silver having an impurity concentration of 10 ppm to 500 ppm; wherein the impurity included in said silver is at least one of Al, Fe, Cu, Ni, Si and Zn that imparts to the material a breaking strain of at least 30 % in a stress-strain test.

However, Otto recites controlling stress / strain in the cladding material to avoid defect in the superconductor, (column 6, line 14-30). That implies that the cladding

Art Unit: 2841

material should be selected such that it will have desire mechanical strength to avoid the damage to the superconducting phase. Otto further recite the fracture strain greater than 1% (column 18, line 5-10) and further more disclose the variation of tensile strength and the fracture stain with percentage of impurity (Ga) in the cladding material (column 14, line 55-68). This further implies that the fracture strain can be controlled by varying the impurity in the silver.

Christopherson discloses an alloy matrix for superconductor and recites that high purity silver usually contains some amount of copper as an impurity, and recites even further reducing the impurity to improve quality of the matrix to avoid damage in the subsequent operations. This implies that the silver (or silver alloy) should be as pure as possible (column 4, line 12-31).

Higashiyama Kazuhisa discloses a superconductive with silver pipe having 99.99 % purity (which meets the limitation of impurity of 10 ppm to 500ppm) to have a superconducting cable with better performance.

Roberts discloses metallic tube of silver and further recites that other alloying material such as aluminum is used to increase the strength / stiffness of the structure (column 3, line 34-44).

Further, the superconductor wire of Otto, Christopherson, Higashiyama and Roberts are operational wire with the stress and strain controlled to have desired performance.

A person of ordinary skill in the art at the time of applicant's invention would have been motivated to have the silver cladding with the desired amount of impurity along

Art Unit: 2841

with alloying material to control stress / strain of the cladding material to have better performance.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the superconducting wire of Otto with the cladding metal comprising silver having an impurity concentration of 10 ppm to 500ppm; wherein the impurity included in said silver is at least one of Al, Fe, Cu, Ni, Si and Zn that imparts to the material a breaking strain of at least 30 % in a stress-strain test, as taught by Christopherson, Higashiyama and Roberts, in order to control stress / strain of the cladding to have desired performance.

Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involve only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Also, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960).

Regarding claims 2-5, adjusting the value of breaking strain (claim 2-3) or the proportion of oxide superconductor (claim 4) and maximum stress (claim 5), would have been obvious to a person of ordinary skill in the art at the time of applicant's invention, to control stress / strain of the cladding to avoid damage to the superconducting material as well as to have the desired current carrying capacity.

Regarding claim 6, Otto further discloses the material of said cladding metal contains silver and/or silver alloy (column 6, line 5-14).

Regarding claim 7, Otto further discloses a material of said oxide superconductor contains a bismuth-based oxide superconductor (column 6, line 31-45).

### ***Response to Arguments***

4. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McIntyre (US Patent No. 6,448,501) discloses silver sheaths alloyed with material such aluminum (column 12, line 1-11).

Seuntjens (US Patent Application Publication No. 2002/0,043,392) disclose silver alloy with silver is the dominant amount of material with Aluminum, copper or silicon as alloying material (page 3, paragraph 0029).

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 2841

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwarbhai B. Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jinhee Lee can be reached on (571) 272 1977. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2841

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ibp  
June 19, 2010

/Ishwarbhai B Patel/  
Primary Examiner, Art Unit 2841